**EXHIBIT 1**

**DECLARATION**

I, Leo J. Hindery, Jr., am the Managing General Partner of InterMedia Partners and its affiliates ("InterMedia"). In that capacity I have overall responsibility for all aspects of the management of the cable operations of the company. InterMedia is a series of limited partnerships and corporations that operates and manages cable television systems in the States of Arizona, California, Georgia, Hawaii, Illinois, Iowa, Minnesota, North Carolina, South Carolina, Tennessee, and Wisconsin. As of June 30, 1993, InterMedia provided cable service to over 640,000 subscribers.

One of my functions involves the negotiation of programming rights for the distribution to our subscribers of national and regional satellite programming. I am, therefore, very familiar with the base rates charged by the major cable programming networks listed in Attachments A and B to this Declaration. I have compiled these Attachments, which identify the major national cable television programming services (Attachment A) and the regional sports programming services (Attachment B), and their respective subscriber counts as of May 1993.

For all of the national programming services listed in Attachment A, the average monthly rate per service per subscriber is $0.205. If this average is weighted according to the number of subscribers to each service, the rate is $0.245. The rates range from $0.11 to $0.78.

For all of the regional sports programming services listed in Attachment B, the average monthly rate per service per subscriber is $0.54. The weighted average based on the number of subscribers to each service is $0.59. The rates range from $0.35 to $1.00.

I declare under penalty of perjury that the foregoing is true and correct.

Dated: August 4, 1993

Leo J. Hindery, Jr.

**EXHIBIT 1, ATTACHMENT A**

**August 1993 Cable Programming Services Rate Card Analysis ***

| Cable Programming Service | Subscribers (as of May 1993) |
|---|---|
| American Movie Classics | 44,500,000 |
| Arts & Entertainment | 56,000,000 |
| Black Entertainment TV | 35,700,000 |
| Bravo | 10,500,000 |
| CNBC | 48,300,000 |
| CNN | 61,000,000 |
| CNN/Headline News | 51,400,000 |
| C-Span | 58,700,000 |
| Cartoon | 5,100,000 |
| Comedy Central | 27,000,000 |
| Country Music TV | 18,900,000 |
| Courtroom Television | 8,000,000 |
| Discovery | 59,000,000 |
| E! Entertainment | 21,500,000 |
| ESPN w/NFL | 61,600,000 |
| Family Channel | 57,400,000 |
| Learning Channel | 19,500,000 |
| Lifetime | 57,000,000 |
| MTV | 57,300,000 |
| Nickelodeon | 59,000,000 |
| Nostalgia | 14,700,000 |
| Sci-Fi | 11,000,000 |
| Nashville Network | 57,400,000 |
| TNT | 58,400,000 |
| USA Network | 60,125,000 |
| VH-1 | 47,400,000 |
| Weather Channel | 53,400,000 |

*** Excludes regional sports networks**

**EXHIBIT 1, ATTACHMENT B**

**August 1993 Cable Regional Sports Programming Services Rate Card Analysis***

| Regional Sports Service | Subscribers (as of July 1993) |
|---|---|
| Home Sports Entertainment | 3,400,000 |
| Prime Sports Intermountain | 465,237 |
| Prime Sports Midwest | 284,799 |
| Sports South | 3,200,000 |
| Sports Channel Chicago | 2,245,472 |
| Midwest Sports Channel | 985,000 |
| Sports Channel Pacific | 2,100,000 |

*** Assumes carriage on basic level and carried in the primary market.**

# A Review of the FCC's Benchmark Formula and Proposed Revisions

August 4, 1993

ERNST & YOUNG

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## SUMMARY

Because of its belief that certain critical factors affecting the cost, and resulting price, of providing cable service were not adequately reflected in the FCC's benchmark rates, the Medium-Sized Operators Group (the Group) engaged Ernst & Young to evaluate the potential role of four cost factors in relation to the benchmark rates. These factors were:

- Programming Costs
- Rebuild Costs
- Density
- Alaska Costs

Ernst & Young undertook two types of analysis, as appropriate, to assess the impact of these issues. First, if variables capturing these factors existed in, or could be constructed from, the FCC's database, the additional variables were added to the FCC's formula to test their explanatory power and statistical validity. Second, cost and operating data were collected on selected Group members' cable systems to test whether the statistical results also reflected the "real world" operating conditions. The results of our analyses are briefly described below.

Programming Costs

We added a variable to the FCC's formula based on the number of channels in the basic tier. Basic tier channels are most often over-the-air, PEG, shopping, and superstation channels, and are unlikely to include the more expensive cable programming channels. Adding such a variable will improve the distinction in the FCC formula between the costs of providing basic tier channels compared with cable programming channels. Addition of this variable was statistically significant and improved the explanatory power of the model (i.e., adjusted R-Square increased). The statistical significance of this added variable implies that the FCC formula did not adequately account for the higher costs of cable programming channels compared with basic tier channels.

In addition, we evaluated the incentives created by the benchmark formula on a cable operator's willingness to add programming. We found that, for a relatively large system with a typical channel capacity and number of cable programming channels, adding channels would result in additional compensation of approximately $0.14/channel, which is generally below the average programming costs alone of approximately $0.20/channel. This outcome does not appear to reflect Congress's intent to provide consumers with a wide variety of programming options at reasonable prices.

Rebuild Costs

We examined the actual costs of recent rebuilds completed in Group members' systems. This analysis indicates that there are substantial capital requirements to rebuild a system to increase its channel capacity. Because the benchmark rates reflect a declining average cost per channel (presumably reflecting economies of scale), on a going-forward basis as well, the benchmarks appear to provide inadequate incentive to reconstruct or upgrade cable systems.

The FCC's database, and benchmark formula, did not incorporate any variable which captured the impact of recent system rebuilds on prices. This omission has unfairly penalized those cable systems which recently completed a system rebuild and had not fully reflected rebuild costs in their prices as of 9/30/92 (the record date of the FCC's data base). To compensate for this oversight, we have suggested a straightforward and easily auditable adjustment to the Worksheet calculations which would enable operators who completed rebuilds, and adjusted their prices, subsequent to 9/30/92 to initialize their benchmark rate based on their post-rebuild prices.

Density

To evaluate the impact of reflecting density in the benchmark formula, we added two variables: the first for systems with fewer than 50 homes passed per mile and the second for systems in the Western United States (where population densities are lower than in other parts of the country). Each of these variables was positive and statistically significant, and increased the formula's explanatory power. Adding variables to the benchmark formula to capture the higher costs found in low density systems would more adequately compensate the operators of such systems for their higher costs.

Using construction cost and density data provided by Group members, we also reviewed the relationship between the (i) capital costs of distribution plant per subscriber and (ii) system density. We found that capital costs per subscriber are substantially higher in systems with densities of less than 50 homes passed (HP) per mile. In the sample systems, monthly capital and operating costs per subscriber were approximately 24% to 37% higher in the low density systems (less than 50 HP/mile) than in higher density systems.

Alaska Costs

The cost of providing cable (as well as virtually all other) services in Alaska is significantly higher than in comparable areas in the lower 48 states. Cost data provided by Group members with Alaska systems suggest that combined capital and operating costs are 50% to 100% higher than in the lower 48 states. Some adjustment to the benchmark rates is required to account for the unique cost characteristics of the Alaska environment.

Basic Tier Rates

Because the vast majority of the costs incurred in providing cable service (plant, customer service, repair and maintenance, and billing costs) are relatively invariant with respect to the level of service purchased (the notable exception is programming cost), the FCC's per channel

benchmark rates will inevitably result in basic tier rates which are not compensatory. The FCC should consider adopting a "subscriber line charge" structure with an increased portion of costs recovered through a flat monthly charge applicable to the basic tier.

## A. Introduction

Ernst & Young was engaged by the Medium-Sized Operators Group to evaluate the statistical validity of the FCC's benchmark formula and the degree to which it reflected the relevant cost characteristics of providing cable services. In particular, the Group was concerned that such significant factors as programming costs, rebuild costs, and system density were not accurately or completely reflected in the benchmark formula. Also, some of the members operate systems in the State of Alaska and believe that the extremely high costs of serving Alaska would not be captured in a formula based on nationwide data.

Ernst & Young undertook two types of analyses, as appropriate, to address these issues. First, we reviewed the database and statistical methodology used by the FCC to construct the benchmark formula to evaluate whether it was possible and methodologically appropriate to include variables directly or indirectly reflecting programming costs, rebuild costs and system density into the benchmarks. If possible, we then developed alternative formulae to the FCC's model incorporating variables which appear to better capture these additional factors and tested them for statistical validity. In each instance, as is discussed in the body of the paper, the variables added to the FCC's formula were statistically significant and improved the explanatory power of the model.

In addition, we evaluated the incentives and costs created by these factors in relation to the FCC's benchmark rates. First, the pricing incentives created by the benchmarks for the basic and cable programming tiers, relative to current price levels for several systems owned by Group members, were analyzed. Second, using construction, rebuild, and density data from various Group members' systems, we compared the actual cost of upgrading or rebuilding cable systems with the compensation for increased channel capacity provided under the benchmarks. We found that the benchmarks provided almost no additional compensation for recent rebuilds or incentives for future ones.

System density was also compared to actual construction costs for distribution plant, and it was found that construction costs in low density systems resulted in significantly higher monthly costs per subscriber than those in high density systems.

Finally, we examined the cost of providing cable service in selected Alaska systems, which showed significantly higher operating and capital costs of providing cable service in that state compared to similar systems in the lower 48.

## B. Background

1. How did the FCC determine the proposed benchmark rates?

   The FCC used a formula to generate its proposed benchmark rates. (This formula appears on page 12 of Appendix E of its Cable Television Rate Regulation Order 92-266.) The formula compares rates per channel for 377 different cable franchises in September 1992 (out of a nationwide universe of 29,963 community units in the FCC's

database). The FCC formula recognizes that certain factors influence rates per channel observed in the marketplace. For example, rates per channel tend to be lower for franchises with a larger number of non-premium channels. Other factors that were identified as important in influencing the rates per channel among franchises include the following: the number of subscribers to the cable system (more subscribers decrease rates per channel); the number of non-premium satellite channels (more satellite channels increase rates per channel); and competition, as defined by the statute (competitive franchises, as defined by the statute, are represented to have lower rates per channel).

2. How did the FCC determine which factors were important in determining cable rates?

   The factors in the FCC model were identified through the use of a computer program known as a "step-wise" regression program. Although the exact version of the step-wise program used is not known, the FCC's step-wise regression computer program was most likely asked to search among a large list of factors for (i) the factors that are important and (ii) the one combination of important factors (i.e., formula) that best explains the variation in rates per channel among the cable franchises in the FCC survey data. "Best" in this case means most complete—that is, the program chooses the one formula which, among those considered, explains the differences in rates per channel among franchises most completely. Completeness is determined by the percentage of variation in rates per channel among franchises explained by each formula. (This measure of completeness is called an "R-Square." An "Adjusted R-Square" is actually used because of certain technical factors.) The formula with the highest Adjusted R-Square of those formulas considered by the step-wise regression program was chosen. The FCC's formula had an adjusted R-Square of 0.63, which means that this formula explained 63% of the variation in rates per channel among the 377 cable franchises examined.

3. Why is the use of a step-wise regression program unreliable?

   A step-wise regression program uses a rigid and mechanical procedure for determining which factors influence a variable (in this case, rates per channel). This procedure has been widely criticized by statisticians and economists for a variety of reasons (see, for example, G. Maddala, *Econometrics*, 1977). Its main weakness is that it cannot reliably determine which factors are important when two or more possible factors are themselves correlated. Many variables that are important in explaining cable rates are highly correlated (e.g., the total number of channels and the total number of programming channels). The computer's choices are also limited to those variables in the list it is asked to evaluate. So, for example, the higher costs and consequently higher rates associated with rebuilt systems were not considered by the FCC's step-wise regression program because there was no variable in the FCC's data list that indicated whether a franchise was rebuilt. The step-wise procedure can also be very sensitive to the order of the combination of factors it considers. This means that a factor which may be important in explaining variations in cable rates (e.g., programming costs) may be discarded by the step-wise program because it was considered too early or too late in the program.

## C. Evaluation of the FCC Formula for Computing Benchmark Rates

Using the FCC's survey data and the step-wise regression method to choose a formula does not, we believe, result in the correct formula for constructing benchmark rates. The FCC formula left out several important factors that influence the variation in cable rates among franchises. These additional important factors include:

- programming costs;
- the costs of rebuilding cable systems; and
- density (homes passed per mile of plant cable).

Ernst & Young added variables reflecting programming costs and density factors to the FCC's formula. These factors were found to be important (i.e., statistically significant by conventional standards) in explaining the variation in cable rates among the cable franchises considered by the FCC. Also, the FCC data did not include information on rebuilds or upgrades. After adding these factors, the Adjusted R-Square is at least as high as the FCC's formula. Therefore, by the FCC's own criteria, these factors should have been considered in calculating benchmark rates.

Furthermore, by adding these additional variables to the FCC's model, the price per channel differential between systems which are defined as competitive and noncompetitive under statutory regulations decreased. By not including programming cost and density variables, the FCC formula has therefore unfairly penalized systems that are not defined as competitive. We also believe that the FCC should take into account recent rebuilds/upgrades in the initial rates, as described in Item 2 below.

1. Programming Costs

   a. Programming Costs in the Initial Benchmark Rates

      The FCC's proposed benchmark rates provide higher rates per channel for cable operators which, for a given number of total channels, provide a greater number of satellite channels. However, such higher rates per channel still do not adequately reflect the higher costs incurred for such satellite or cable programming channels.

      For example, consider two cable systems each having 40 regulated channels and 10,000 subscribers. System 1 has 10 basic tier channels and 30 cable programming channels (assumed for the purpose of this example to be synonymous with satellite channels). System 2 has 20 basic and 20 cable programming channels. Under the benchmark formula, System 1 could charge $0.88 more than System 2 because of System 1's greater number of satellite channels ($0.559 minus $0.537, times 40 channels). The problem is that the $0.88 amounts to only an average of 8.8 cents for each of the 10 additional satellite channels provided by System 1. This is well below the $0.20 per channel average cost for satellite programming. As a consequence, System 1 may be better off if it removes certain higher-cost satellite channels from

regulated tiers and adds low cost channels. Such is the apparent bias in the formula against high-value cable programming.

The proposed rates appear to present perverse incentives to cable operators. Specifically, since the rates per channel under the proposed benchmarks may be lower than the cost of certain programming channels, the cable operator will actually have an incentive under the FCC's proposed benchmark rates to decrease the number of cable programming channels offered, and to increase the number of non-programming channels.

If the FCC had added an additional variable into its formula to take into account the differences between basic tier channels and second and other tier channels, the higher programming costs associated with cable programming channels would have been more adequately reflected. The FCC should have added this variable according to its own methodological standards. Ernst & Young is not suggesting that this change alone is sufficient to address the economically inappropriate incentives inherent in the FCC's proposed benchmark rates. However, the fact that this small change to the FCC's formula changes the difference between rates per channel for cable programming and non-programming channels suggests that the FCC must reconsider the effect of programming costs on benchmark rates.

The regression equation we developed is the following:

$$\begin{aligned} LNP = {} & 2.500 - \underset{(2.77)}{0.0819}\,(ABC) + \underset{(3.05)}{7.9088}\,(RECIPSUB) - \underset{(11.78)}{0.8101}\,(LNCHAN) \\ & + \underset{(1.75)}{0.0805}\,(LNSAT) - \underset{(3.04)}{0.0918}\,\mathbf{(LNONE)} \end{aligned}$$

(The adjusted R-Square is 0.64, which is higher than in the FCC's model. The numbers in parentheses are called "t-statistics," and their values indicate that all the variables in this "revised" formula are statistically significant by conventional standards.)

The variables in the above formula are identical to those in the formula used by the FCC in constructing its proposed benchmark rates, except that we added an additional variable (indicated in bold) to better capture the differences in rates per channel between basic and other tiers. This additional variable, taken directly from the FCC survey data, is equal to the log of the number of first tier channels. Basic tier channels are typically not cable programming channels (with some exceptions). By including this variable, the revised formula better reflects the lower programming expense associated with basic tier channels compared with the other tiers, which are comprised mainly of cable programming channels.

We can illustrate that this revised formula would more adequately compensate a cable operator for the costs of cable programming channels than the FCC formula, with the following example.

EXAMPLE:

From the previous example of System 1, with 40 total and 30 satellite channels, the FCC formula gives a benchmark rate of $0.559 per channel, for a total of $22.36 for those consumers who purchase all 40 channels. Using the revised formula above (which takes better account of the higher costs of providing cable programming channels versus basic tier channels), the cable operator will be compensated $0.602 per channel for a total of $24.08. This revised formula produces a difference of $2.20 (rather than $0.88) between Systems 1 and 2 ($0.602 minus $0.547, times 40 channels). In other words, the revised formula provides an average of 22 cents per channel to cover the costs of the 10 more satellite channels provided by System 1. This is a much more realistic range for compensation for cable programming costs than the 8.8 cents per channel from the example using the FCC's formula. (Information on the base programming costs of the national cable programming services provided by one of the Group members indicates that only 3 of 34 cable programming channels cost less than 8.8 cents.)

It should be noted that the revised formula above may not fully compensate cable operators for their programming costs. The purpose of this formula is simply to demonstrate to the FCC that its benchmark formula is inadequate in compensating cable systems for the cost of providing high quality cable programming. If cable operators are not adequately compensated for their programming costs, they will not be able to provide high-quality programming (which typically costs more than lower quality programming) to subscribers. This end result will certainly not be to the advantage of the consumers and is contrary to Congressional intent.

b. Programming Costs in the Subsequent (Price Capped) Rates

The present benchmark formula should not be used for implementing price caps, because it contains inadequate incentives to provide additional quality programming as cable operators go forward from the initial regulated rates. Consider again the example of System 1, discussed above, with 40 total and 30 satellite channels.

If System 1 were to add 5 satellite channels after the initial regulated rates were implemented, the subscribers would receive a total of 45 channels, of which 35 would be satellite channels and 10 would be basic tier channels. The current FCC benchmark formula would allow the cable operator to charge only $0.512 per channel, for a total of $23.04 for those subscribers who buy all 45 channels provided. This is an increase of just $0.68 over the previous total of $22.36 for 40 channels, or an average revenue of $0.14 per new satellite channel.

Depending on the satellite channels added, the $0.14 may or may not compensate the cable operator for the additional cost of programming. The $0.14 is certainly well below the current average cost of cable programming of about $0.20 per channel.

The best way to provide adequate incentives for adding programming channels may be to make cable programming costs external to the price cap formula. That is, rather than select an average rate per channel for compensating cable operators for all costs, the FCC should consider cable programming costs separately. A crucial element of this incentive regulatory structure is a reasonable profit margin on cable programming, added to the programming cost and included in the price cap. As channels are added over time, the price cap would be adjusted upward to account for the costs of the added programming. Then, in years subsequent to adding cable programming channels, cost increases on those channels would be an external adjustment to the price cap to the extent that increases exceed the rate of inflation.

2. Cost of Rebuilding Cable Systems

   a. Rebuilds in the Benchmark Formula

The FCC's benchmark rates do not reflect the costs associated with rebuilding cable systems. This may be based on several factors. First, as discussed above, the benchmarks do not adequately reflect the costs of programming for such additional channels. Second, instead of collecting specific data relating to rebuilds, the FCC's survey collected essentially a "static snapshot" of revenue information of selected cable systems as of September 30, 1992. At that time, however, some cable operators had recently completed system rebuilds and were in the process of phasing-in rate increases necessary to compensate them for rebuild costs. (An operator may initiate a rate increase that reflects the entire capital cost or may increase the rate to account for only a portion of the capital costs in order to avoid steep rate increases.) For other operators, the rebuild was not yet complete, and therefore the rate impact of these rebuilds was not reflected in the FCC database from which the benchmarks were derived. Third, cable systems that undertake upgrades and rebuilds because of low channel capacity and/or aging facilities would probably have had lower than average rates. Because the FCC did not ask for information on recent rebuilds, the benchmark formula could not have taken rebuilds into account.

If cable operators cannot recover the cost associated with rebuilding cable systems through higher rates, systems will not be rebuilt. The proposed benchmark rates present powerful disincentives for rebuilding cable systems. If the FCC had added an additional variable into its formula to account for the differences between rebuilt and non-rebuilt cable systems, this disincentive to expand channel capacity and modernize plant would be decreased. Based on data collected from the Group's members (described below), we believe it is likely that, had the FCC collected and evaluated data identifying recently rebuilt systems, adding a rebuild variable to the benchmark formula may well have yielded statistically significant results and enhanced its explanatory power.

As discussed in Section 2(b) below, the Commission's Worksheets also have the unintended effect of establishing disparate rates per channel for rebuilds depending on whether they were completed before or after September 30, 1992.

b. Recent Rebuilds and the "Worksheet 5 Problem"

The problem posed by recent rebuilds where the rate increase resulting from a rebuild is not reflected in the benchmark formula can, we believe, be rectified by a straightforward and easily auditable adjustment to the Form 393 Worksheet calculations. We suggest that a rule similar to the following be adopted:

> If a rebuild or upgrade has been completed since September 30, 1992 and new rates put into effect, then use the new (post-rebuild) rates and channel counts in both Worksheet 1 and Worksheet 2, and ignore Worksheet 5. (In other words, do not use the obsolete September 30, 1992 rates and channel counts in Worksheet 2, but rather the current information identical to Worksheet 1. This will eliminate the need for a Worksheet 5 adjustment.)

This proposed adjustment to the worksheets corrects a significant problem that is illustrated by the two sets of Form 393 worksheets in Attachment 1. The first 3 columns in Attachment 1 illustrate the hypothetical situation where a cable operator completed a rebuild, added 10 satellite channels, and increased basic and programming tier rates from $19.90 to $24.50 before September 30, 1992. The next 3 columns illustrate the actual situation of a cable operator which completed the rebuild after September 30, 1992, added 10 satellite channels, and prior to the rate freeze increased basic and programming tier rates from $19.90 to $24.50. That is, all facts are the same in the two scenarios except for the timing of the rebuild and associated channel additions and rate increase.

Comparing the summary worksheets in Attachment 1, one can see that timing makes a significant difference in the Maximum Permitted Rate. If the rebuild, channel additions, and rate increase had been completed before 9/30/92, the maximum initial rate per channel would have been $0.579, compared to only $0.536 for the actual rebuild after 9/30/92. This $0.04 difference results in a difference in the monthly regulated combined rates of $1.81, which represents about $670,000 in annual revenues.

In the case of the rebuild before 9/30/92, Worksheet 2 limits the rate reduction to 10% below the 9/30/92 base rate per channel. The resulting "reduced base rate per channel" in line 230 of Worksheet 2 is $0.586, or about $0.04 above the benchmark channel rate of $0.545 on line 220. Worksheet 5 is not a factor in this scenario because we assume that 10 satellite channels were added prior to 9/30/92 and none thereafter.

In contrast, for the rebuild situation after 9/30/92, Worksheet 2 results in a base rate per channel equal to the benchmark rate applicable to the old (pre-rebuild) number of

channels. Then Worksheet 5 operates to adjust this rate downward for the benchmark formula's effect of adding 10 satellite channels. The difference here is that the 10% limitation does not apply, and Worksheet 5 takes the rate per channel all the way down to the benchmark applicable to the new (post-rebuild) number of channels. The result is a maximum rate per channel of $0.536, or about $0.04 below the corresponding maximum rate in the pre-9/30/92 rebuild scenario.

Thus, for the post-9/30/92 rebuild only, Worksheet 5 acts to effectively contravene the Commission's intent in Worksheet 2 to limit reductions in per channel rates to 10%. The completion date of the rebuild makes a big difference and has an inequitable result. The same value to the customer is added in both scenarios, in response to customer and franchise authority demands, but very different value is received by the operator depending solely on the date of rebuild completion.

The suggested change to the benchmark forms would correct this problem. Only for those limited number of situations where rebuilds were completed between 9/30/92 and the present, an adjustment would be made to the worksheet procedures to correct the inequitable operation of Worksheet 5. In these rebuild situations the number of added channels is likely to be relatively large, because of the removal of capacity constraints, and therefore the "Worksheet 5 problem" becomes severe. With the suggested change, per channel rates would still be subject to the 10% reduction on Worksheet 2. However, the time frame used to develop the adjusted rates would essentially be moved back, reflecting the post-rebuild rates instituted after September 30, 1992. The result would essentially be the same as shown in Attachment 2, and would eliminate the inequitable result described in detail above.

c. Providing Adequate Incentives for Future Upgrades and Rebuilds of Cable Systems

After regulated cable rates are initialized, there should be incentives built into the price cap formula to allow cable operators to add channel capacity (and quality programming) to their systems. The existing benchmark formula does not appear to provide adequate incentives for future rebuilds, and an alternative mechanism should be developed for setting the price cap.

The following table illustrates, for eight actual rebuilds, the inadequacy of the rebuild/upgrade incentive built into the benchmark formula. For each of the rebuilds (all of them were classified by the operators as "full rebuilds"), we obtained information on the costs and capacity added. We then developed a monthly per channel per subscriber cost of the additional capacity as described in the table. We compared this cost to the incremental revenue one would receive from the benchmarks for each system, based on the pre-rebuild and post-rebuild capacities, by adding an additional 10 satellite channels. The difference between per channel revenue and cost is the margin available to recover incremental programming costs for the 10 added satellite channels. (The rebuild information from the Group members and the calculations supporting the table are displayed in Attachment 2.)

In two of the rebuild cases, there is a negative margin and therefore no coverage of programming costs. In the other cases, the margin available to cover programming costs is between 1 cent and 8 cents monthly. As noted above, the current average price for cable programming is in the range of 20 cents per month, and only 3 of 34 cable programming channels charge 8 cents or less. Thus, the benchmark formula does not add sufficient revenue, as channels are added over time, to compensate for capital and programming costs.

Inadequate incentives in the price cap will lead to one of two consequences, both undesirable. Either cable operators will not add channels to regulated tiers of service, or they will not upgrade or rebuild, in spite of subscriber and franchise authority demand for additional programming. These consequences can be avoided if the price cap formula provides for more additional revenue per channel, as channels are added, than is provided by the existing benchmark formula.

Cost of Cable System Rebuilds Compared to Incremental Cable Programming Revenue
Examples of Eight Rebuilds
(Please refer to Attachment 2 for rebuild data and calculations.)

| System Location | Number of Subscribers | Rebuild Cost[1] | Additional Revenue[2] | Margin Before Programming Cost[3] |
|---|---|---|---|---|
| Calif. | 9,566 | $0.09 | $0.16 | $0.07 |
| Calif. | 8,162 | $0.11 | $0.17 | $0.06 |
| Tenn. | 5,690 | $0.18 | $0.24 | $0.06 |
| Tenn. | 4,010 | $0.27 | $0.24 | –$0.03 |
| Fla. | 22,943 | $0.07 | $0.14 | $0.07 |
| Minn. | 6,219 | $0.15 | $0.17 | $0.02 |
| Minn. | 6,950 | $0.07 | $0.15 | $0.08 |
| Tex. | 1,800 | $0.25 | $0.16 | –$0.09 |

1 Rebuild cost per additional channel of capacity, calculated as a monthly cost per channel per subscriber, using an average 12-year depreciation life and a 20% annual factor for return and taxes.

2 Additional revenue per channel per subscriber for each system, estimated using FCC benchmark rate tables for each system. Assumes that after rebuild, each system adds 10 satellite channels.

3 Additional revenue minus monthly rebuilt cost.

There are two complementary ways under price caps to provide operators with adequate incentives to add capacity and valuable programming. First, the cost of programming for new channels added after September 1, 1993 should be treated as an external addition to the price cap in the year the cable programming channels are added. That is, the cost of programming for added channels, plus the start-up marketing costs (net of programmer incentives) and a reasonable profit margin for the cable operator, should be added to the price cap. This will give the cable operator the incentive to add valuable programming that customers want.

Second, a cable operator should have the option, under streamlined cost-of-service rules, to apply for external treatment for the cost of rebuilds. The cost of a rebuild, calculated according to streamlined procedures on a per channel of capacity basis, should be added to the price cap to the extent that the rebuild would result in an increase in per channel cost for regulated cable services. (To the extent that the rebuild would not result in a per channel increase in capital costs, then the existing price cap would continue to apply.) The streamlined procedures would specify the calculations rules for the costs of a rebuild, so that extensive cost-of-service showings could be avoided. After the costs of the rebuild were included as an adjustment to the price cap, subsequent increases in regulated rates would be limited by the annual inflation adjustment in the price cap formula.

These two proposals would incorporate adequate incentives under the proposed price cap regulations to provide quality, state-of-the-art service, and valuable programming. The two proposals would also simplify regulation by avoiding the need for extensive cost-of-service showings.

3. Density

The FCC's formula does not take into account the higher costs associated with operating cable systems in low household density areas. When the density of homes passed per plant mile of cable is less than 50, cable operators incur significantly higher operating costs and higher rebuild costs. By not allowing the cable operators to appropriately recover their costs, the proposed benchmark rates may make it uneconomical for cable operators to serve some of the less densely populated areas or to rebuild them. This may leave some of the rural areas with either no cable service or cable service provided by antiquated technology and a limited number of channels.

If the FCC had added a variable to account for the higher costs associated with operating cable systems in low density franchises, the benchmark rates would have been less financially burdensome to low density franchises. The FCC stated that they added a variable for the number of homes passed per cable mile to their model, but that it was not consistently statistically significant. Ernst & Young believes that the reason the FCC did not find the density variable to be significant was because the FCC did not account for the fact that the number of homes passed per mile of cable and the population density are correlated. Therefore, the two variables together determine variations in the rates per

channel, and any one of the two variables by itself is not powerful enough to affect cable rates very significantly.

Ernst & Young added two variables to the FCC formula that show the higher costs, and consequently the higher prices per channel, observed for cable systems that operate in franchises with less than 50 homes passed per plant mile of cable. The first factor is a variable that indicates whether a franchise passes less than 50 homes per mile of cable. Since the Western United States has a much lower population density than the rest of the country, we also added a variable that indicates whether a franchise is located in the West. By its own methodological standards, the FCC should have added such variables or variations thereof to its model. It is not being suggested that adding these two variables will by themselves fully compensate cable operators who operate franchises in low density areas. However, adding these two variables, or similar variables, will provide more adequate compensation for cable operators in low density areas than the benchmark rates constructed from the current FCC model.

The regression equation we developed is the following:

$$\begin{aligned} LNP = {} & 2.2655 - 0.0927\,(ABC) + 7.6406\,(RECIPSUB) - 0.8539\,(LNCHAN) \\ & \qquad (3.20) \qquad\quad (2.54) \qquad\quad (13.20) \\ & + 0.1039\,(LNSAT) + 0.0648\,\mathbf{(DENSITY)} + 0.1751\,\mathbf{(POPDEN)} \\ & \quad (2.32) \qquad\quad (2.32) \qquad\quad (4.59) \end{aligned}$$

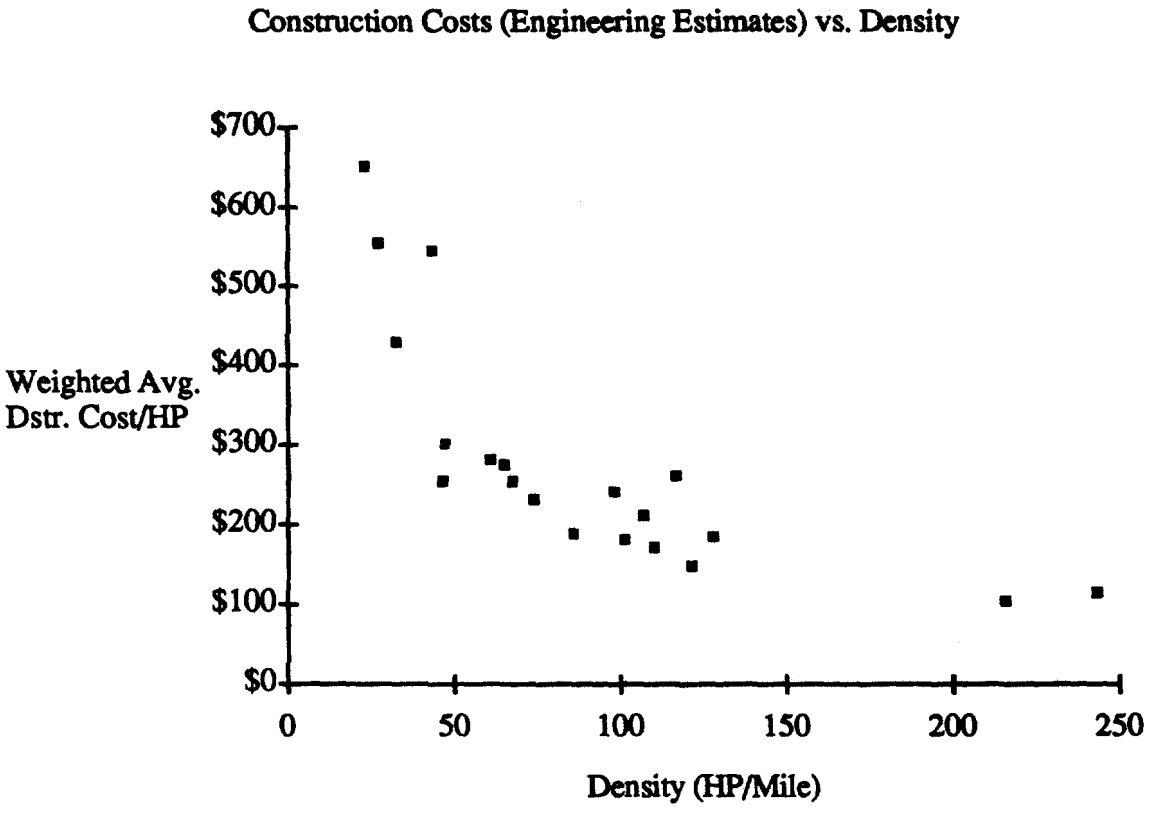
(The adjusted R-Square is 0.65, which is higher than in the FCC model. The t-statistics indicate that all the variables in this "revised" model are statistically significant by conventional standards.)

The variables in the above formula are identical to those in the formula used by the FCC in constructing its proposed benchmark rates, except that we added two additional variables (indicated in bold) to better capture the differences in rates per channel between cable systems in low density franchises and other cable systems. By including these variables, this revised formula reflects the higher rates per channel observed for cable franchises with less than 50 homes passed per plant mile of cable compared with other franchises in the FCC survey data.

To further demonstrate this point, engineering estimates of distribution plant construction costs per mile, both aerial and buried, as well as plant mileage and homes passed were obtained for 19 systems in the continental United States operated by members of the Medium-Sized Operators Group. The following graph (see Figure 1) shows the relationship of distribution plant costs per homes passed to density (homes passed per plant mile) for the sample companies. The data indicate that distribution plant costs per homes passed increase relatively gradually from approximately $100-$110 for the very high density systems (with over 200 HP/mile) in the sample to between $250 and $300 per HP for systems with densities between 47 and 67 HP/mile. Construction costs per HP for the

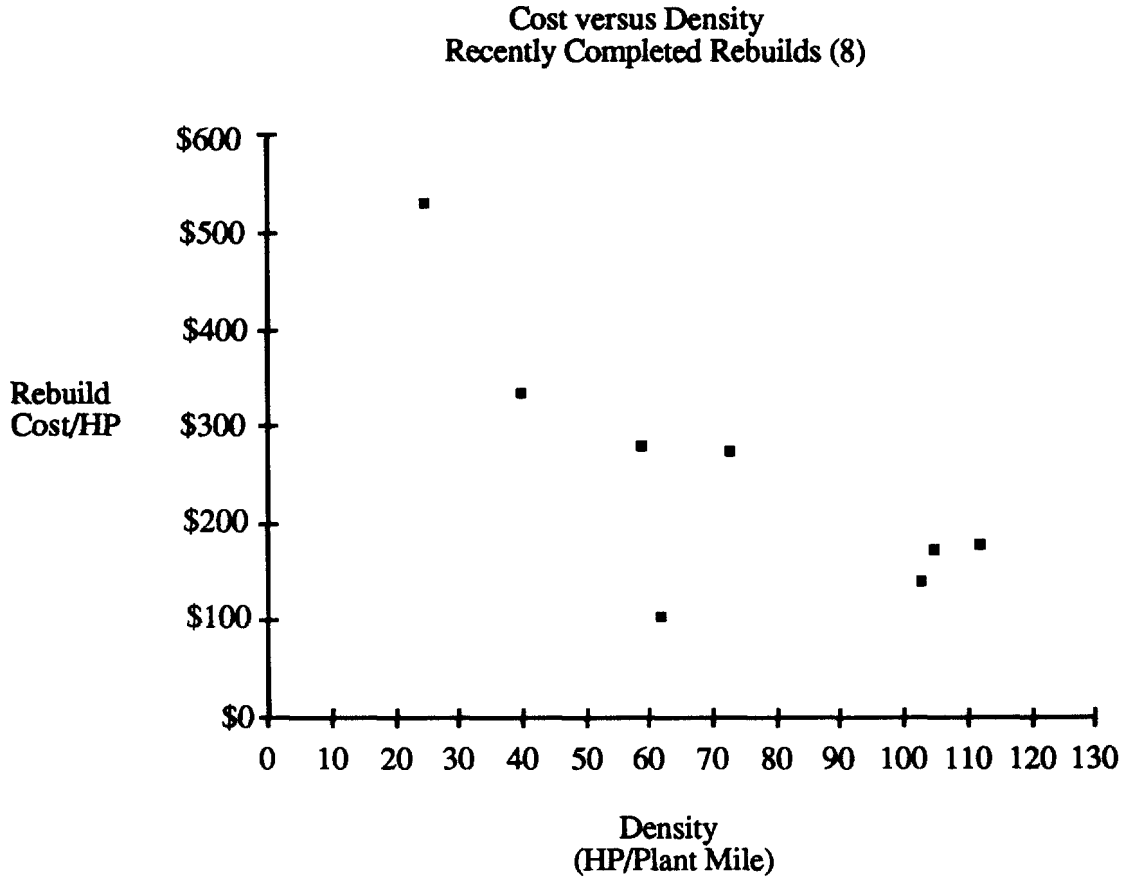
very low density systems increase dramatically, ranging from approximately $425 for a system with 33 HP/mile up to $650 for a system with 23 HP/mile.

FIGURE 1




Data on the actual cost of recent rebuilds completed by members of the Group show a similar pattern (see Figure 2). The one very low density system (25 HP/mile) cost $530 per HP to rebuild. The systems with 40-60 HP/mile cost from $260-$330/HP to rebuild (with one notable outlier at $100/HP), and those in the 100-110 HP/mile range cost between $140 and $180.

FIGURE 2




Higher construction costs per subscriber in low density systems will have a significant impact on the cost structure of a cable system, resulting in higher depreciation, interest, and property tax expenses. In addition, the resulting higher capital (including interest) costs per subscriber would require higher return levels and related income tax allowance.

To roughly estimate the impact of density on the monthly cost of serving subscribers, we calculated the average monthly capital cost of distribution plant (including return, depreciation, and income taxes) per subscriber separately for the 13 high density (greater than 50 HP/mile) and the 6 low density (less than 50 HP/mile) systems in our, admittedly, limited sample. The same methodology was used to develop the rebuild costs shown on page 10. We also calculated the average operating cost (excluding depreciation) per subscriber for the entire sample and separately for the high and low density systems.

For the high density systems, the average capital costs were $5.37 per subscriber per month while for the low density systems they were $12.22. Average operating costs for the entire sample were $22.86 per subscriber per month—$21.80 for the high density systems and $25.17 for the low density systems.

Controlling for differences in operating costs, i.e., using the overall sample average for both high and low density systems, the total monthly capital and operating costs per subscriber are 24% higher in the low density systems ($35.08 versus $28.23). Factoring in differences in operating costs, the total monthly costs per subscriber are 37% higher in the low density systems ($37.39 versus $27.17). Density clearly has a significant impact on the overall cost of providing cable service.

4. Alaska Costs

The high costs of providing services in Alaska have been well documented for the Commission in the case of telephone service. For example, Alaska has the highest "per loop" costs in the United States, even when one includes the largest city in the state, Anchorage, in the average. Service to the smaller towns is significantly above even the high Alaska average. Also, we have recently gained access to information on "average unit bid costs" for telephone outside plant, which is collected by the Rural Electrification Administration of the U.S. Department of Agriculture. This database contains detailed information on bids for outside plant construction, broken down into labor and material components, for the entire U.S. and for the State of Alaska. While we did not have the time available to analyze this information in detail, a preliminary examination suggests that outside plant costs in Alaska, for both labor and materials, are significantly higher than in the rest of the U.S.

We see the same cost situation in the provision of cable television service. For example, in Prime Cable's systems in Alaska, annual operating costs are approximately $309 per subscriber. This compares to approximately $200 per subscriber in similarly sized systems in the lower 48 states.

Capital costs are also much higher in Alaska. Construction cost of distribution plant per home passed in Bethel is approximately $583. This compares to costs in the range of $230-$275 for systems of similar density in the lower 48. Likewise, construction cost of distribution plant is $305 per home passed in Anchorage, compared to approximately $150-$200 for systems of similar density outside Alaska.

5. Basic Tier Rates Are Not Compensatory Under the FCC's Benchmark Approach

Even if the improvements discussed above are made to the benchmark rate calculations, it is important to emphasize that the resulting rates for the basic tier are unlikely to compensate cable operators for the costs of providing the basic tier of service. The reason for this result is straightforward. To provide a basic tier of service, a cable operator must first incur the substantial capital costs of building a cable distribution infrastructure, and also must incur the expenses associated with maintaining that infrastructure. The monthly cost per subscriber of providing the capital and maintenance of the infrastructure is likely to be in the range of $20 per month, exclusive of any programming and marketing costs. (The cost will be less for some cable operators, depending on operating characteristics, and more for others.) The FCC benchmark rates per channel in the $0.40-$0.60 range, for the 10 to 20 broadcast and PEG channels carried

by most cable systems, do not begin to recover the monthly cost of the cable system infrastructure. The FCC should consider adopting a "subscriber line charge" structure with an increased portion of costs recovered through a flat monthly charge applicable to the basic tier.

**Rebuild Example – The "Worksheet 5 Problem"**
**Rebuilds Before and After 9/30/92**

Summary Worksheet for Basic and Programming Service Tiers and Equipment Rates

| | FCC Form 393—Rebuild Before 9/30/92 | | | FCC Form 393—Rebuild After 9/30/92 | | |
|---|---|---|---|---|---|---|
| | (A) Basic Tier Amount | (B) Programming Tier Amount | (C) Total | (D) Basic Tier Amount | (E) Programming Tier Amount | (F) Total |
| 1. Number of channels on basic service tier | 9 | 33 | 42 | 9 | 33 | 42 |
| 2. Monthly franchise fee per subscriber for basic service tier | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 |
| 3. Current rate for basic service tier [include [monthly franchise fee per subscriber from (2) above if not already included] | $12.95 | $11.55 | $24.50 | $12.95 | $11.55 | $24.50 |
| 4. Current basic service per channel rate [divide (3) by (1), above] | $1.439 | $0.350 | $0.583 | $1.439 | $0.350 | $0.583 |
| 5. Maximum permitted per channel rate [from Line 600 on Worksheet 6] | $0.579 | $0.579 | $0.579 | $0.536 | $0.536 | $0.536 |
| 6. Maximum permitted rate for basic service tier [multiply (1) by (5) and add (2), above] | $5.21 | $19.12 | $24.33 | $4.82 | $17.69 | $22.52 |

Worksheet 1: Calculation of Rates in Effect on Initial Date of Regulation and Benchmark Comparison

| Line | Line Description | Instruction/Source | FCC Form 393—Rebuild Before 9/30/92 (A) Basic | (B) Tier 2 | (E) Total | FCC Form 393—Rebuild After 9/30/92 (A) Basic | (B) Tier 2 | (E) Total |
|---|---|---|---|---|---|---|---|---|
| 101 | Tier Charge (monthly) | Enter for all tiers offered | $12.95 | $11.55 | N/A | $12.95 | $11.55 | N/A |
| 102 | Tier Channels | Enter for all tiers offered | 9 | 33 | N/A | 9 | 33 | N/A |
| 103 | Tier Subscribers | Enter for all tiers offered | 31,083 | 30,831 | N/A | 31,083 | 30,831 | N/A |
| 104 | Equipment Revenue (monthly) | Enter in basic column only | $88,119 | | N/A | $88,119 | | N/A |
| 105 | Charge Factor | (Ln. 101*Ln. 103)+Ln. 104A | $490,644 | $356,098 | $846,742 | $490,644 | $356,098 | $846,742 |
| 106 | Channel Factor | Ln. 102*Ln. 103 | 279,747 | 1,017,423 | 1,297,170 | 279,747 | 1,017,423 | 1,297,170 |
| 107 | Charge per Channel | Ln. 105E/Ln. 106E | | | $0.6528 | | | $0.6528 |
| 108 | Franchise Fee Expense (monthly) | Fees incl. in Ln. 101 charges only | | | $0 | | | $0 |
| 109 | Franchise Fee Deduction | Ln. 108E/Ln. 106E | | | $0.0000 | | | $0.0000 |
| 110 | Base Rate per Channel | Ln. 107E–Ln. 109E | | | $0.653 | | | $0.653 |
| 121 | Benchmark Channel Rate | Enter from FCC tables (Attachment A) | | | $0.545 | | | $0.545 |
| 122 | GNP–PI (current) | Survey of Current Business (Table 3, Ln. 5) | | | 124.10 | | | 124.10 |
| 123 | Inflation Factor | Ln. 122E/121.8)-1[121.8=3Q '92 GNP-PI] | | | 0.019 | | | 0.019 |
| 124 | Adjustment Time Period | # months from9/30/92 to current rate | | | 9 | | | 9 |
| 125 | GNP–PI Time Period | # months from 9/30/92 to most recent GNP-PI | | | 6 | | | 6 |
| 126 | Time Factor | Ln. 124E/Ln. 125E | | | 1.50 | | | 1.50 |
| 127 | Inflation Adjustment Factor | (Ln. 123E*Ln. 126E)+1 | | | 1.028 | | | 1.028 |
| 128 | Adjusted Benchmark Rate | Ln. 121E*Ln. 127E | | | $0.561 | | | $0.561 |

If Line 110E is less than or equal to Line 128E, skip to Worksheet 3 and enter Line 110E on Line 300.

If Line 110E is greater than Line 128E, complete Worksheet 2.

**Worksheet 2: Calculation of Rates in Effect on September 30, 1992 and Benchmark Comparison**

| | | | FCC Form 393—Rebuild Before 9/30/92 | | | FCC Form 393—Rebuild After 9/30/92 | | |
|---|---|---|---|---|---|---|---|---|
| Line | Line Description | Instruction/Source | (A) Basic | (B) Tier 2 | (E) Total | (A) Basic | (B) Tier 2 | (E) Total |
| 201 | Tier Charge (monthly) | Enter for all tiers offered | $12.95 | $11.55 | N/A | $16.00 | $3.90 | N/A |
| 202 | Tier Channels | Enter for all tiers offered | 9 | 33 | N/A | 9 | 23 | N/A |
| 203 | Tier Subscribers | Enter for all tiers offered | 31,226 | 31,191 | N/A | 31,226 | 31,191 | N/A |
| 204 | EquipmentRevenue (monthly) | Enter in basic column only | $88,846 | | N/A | $88,846 | | N/A |
| 205 | Charge Factor | (Ln. 201*Ln. 203)+Ln. 204A | $493,223 | $360,256 | $853,479 | $588,462 | $121,645 | $710,107 |
| 206 | Channel Factor | Ln. 202*Ln. 203 | 281,034 | 1,029,303 | 1,310,337 | 281,034 | 717,393 | 998,427 |
| 207 | Charge per Channel | Ln. 205E/Ln. 206E | | | $0.6513 | | | $0.7112 |
| 208 | Franchise Fee Expense (monthly) | Fees incl. in Ln. 201 charges only | | | $0 | | | $8,866 |
| 209 | Franchise Fee Deduction | Ln. 208E/Ln. 206E | | | $0.0000 | | | $0.009 |
| 210 | Base Rate per Channel | Ln. 207E–Ln. 209E | | | $0.651 | | | $0.702 |
| 220 | Benchmark Channel Rate | | | | $0.545 | | | $0.6780 |
| | If Line 210E is less than or equal to Line 220E, skip to Worksheet 3 and enter Line 210C on Line 300.<br>If Line 210E is greater than Line 220E, go to Line 230. | | | | | | | |
| 230 | Reduced Base Rate per Channel | Ln. 210E*.9 (10% reduction) | | | $0.586 | | | $0.632 |
| | Enter greater of lines 220E and 230E on Worksheet 3, Line 300. | | | | | | | |

If Line 210E is less than or equal to Line 220E, skip to Worksheet 3 and enter Line 210E on Line 300.

If Line 210E is greater than Line 220E, go to Line 230.